National Institute of Environmental Health Sciences

Short-term effect of fine particulate matter (PM2.5) and ozone on daily mortality in Lisbon, Portugal

Author(s): Garrett P, Casimiro E
Year: 2011
Journal: Environmental Science and Pollution Research International. 18 (9): 1585-1592

Abstract:

INTRODUCTION: Urban ambient air pollution exposures continue to be a global public health concern. Although air quality targets are often exceeded in Lisbon, the largest city in Portugal, there is currently no study that has assessed the quantitative impact of these pollutants on daily mortality. MATERIALS and METHOD: In this study, we conduct a time series analysis using generalized additive modeling to determine the exposure-response effect from ambient ozone (O(3)) and fine particulate matter (PM(2.5)) concentrations on daily mortality in Lisbon. The dataset used was limited to the Lisbon municipality and for the period 2004-2006. RESULTS and CONCLUSION: For PM(2.5) exposures, we found that the relative risk for cardiovascular mortality in the population group >/Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 65 years is 2.39% (95%C.I. 1.29%, 3.50%) for each 10 mug/m(3) increase. A statistically significant cause-effect relationship for PM(2.5) and mortality was not observed in other population groups. We also report O(3) exposures to be associated with an increase of 1.11% (95%C.I. (0.58, 1.64)) for all-cause mortality in the population group >/Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 65 years and an increase of 0.96% (95%C.I. (0.56, 1.35)) for the general population. When analyzing by cause of death, our results showed a stronger association between O(3) exposure and cardiovascular mortality.

Source: http://dx.doi.org/10.1007/s11356-011-0519-z

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution

Air Pollution: Interaction with Temperature, Ozone, Particulate Matter

Geographic Feature:

resource focuses on specific type of geography

Ocean/Coastal, Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Portugal

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Morbidity/Mortality

Cardiovascular Effect: Other Cardiovascular Effect

Cardiovascular Disease (other): cardiovascular mortality

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Elderly

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified